



Herbal Remedies: Promisingly Effective for Rheumatoid Arthritis

Mullaikodi O¹, Komala M^{*2}

¹Research scholar, Department of Pharmaceutics, School of Pharmaceutical Sciences, Vels Institute of Science, Technology and Advanced Studies (VISTAS), Pallavaram, Chennai-600117, Tamil Nadu, India

²Department of Pharmaceutical Pharmaceutics, School of Pharmaceutical Sciences, Vels Institute of Science, Technology and Advanced Studies (VISTAS), Pallavaram, Chennai-600117, Tamil Nadu, India



Article History:

Received on: 01 Dec 2020

Revised on: 01 Jan 2021

Accepted on: 06 Jan 2021

Keywords:

Rheumatoid arthritis, polyherbal formulations, herbal treatment, standardization

ABSTRACT

Rheumatoid arthritis is most significant and devastating to the human body. It is an autoimmune disorder that affects almost 2-4% of the population of the world. Rheumatoid arthritis usually occurs when the immune system works against one's own body and attacks it. Rheumatoid arthritis generally affects the joints like wrists, elbows, knees and ankles. Even though the reason for causing RA is unknown, the contributing factors for the development of the RA are of various types. Usually women are more affected by RA than men due to the prevalence of hormonal changes. Age is also an important factor that contributes for the development of RA. The general treatment approach for rheumatoid arthritis is to prevent further damage of joints and lower the inflammation and pain. Symptomatic treatment is also the base for RA treatment in many patients. Considering these side effects and limited use of the synthetic drugs, a deep focus has been put into herbal drugs as useful remedies to treat RA successfully. So there has been a growing trend towards development of polyherbal formulation employing potent herbs to treat the disease. Scientific investigations had been carried out to prove the potency of the herbs to treat RA in various animal and invitro models. Many polyherbal formulations had been marketed successfully and were prescribed by the physician. In this view the standardization stands as utmost important parameter for proving the quality of the formulation. Considering the marketed formulations attempts are to be made to determine the quality and effect of the herbal formulations. Investigations are also to be made to determine the interaction between the herbs employed in the formulation.

*Corresponding Author

Name: Komala M

Phone: 9840697473

Email: komala.pharmacy@gmail.com

ISSN: 0975-7538

DOI: <https://doi.org/10.26452/ijrps.v12i1.4090>

Production and Hosted by

IJRPS | www.ijrps.com

© 2021 | All rights reserved.

INTRODUCTION

Pains and Inflammation are often correlated medical terminologies that refer to redness, rise in temperature and swelling of the area. Arthritis is derived from two words; arth meaning joint and it is meaning inflammation. Arthritis is one of the presentations of inflammation which affects various joints in the body like hips, knees, spine and other places. They usually affect all the joints weight bearing and non weight bearing types. The symptoms are related to inflammation like pain, rigidity; fatigue generalized weakness and swelling of joints. If left untreated, it will lead to the damage of joint, destruc

Table 1: List of plants proven to treat Rheumatoid arthritis

Plant name	Family	Part used	Extract/active principle	Scientific model
Alpinia galangal Linn,	Zingiberaceae	Rhizomes	Galangin	adjuvant-induced arthritis
Aquilaria agallocha	Thymelaeaceae	Leaves and heart wood oil	ethanolic extract	Freund's adjuvant induced arthritic rat model
Barleria prionitis	Acanthaceae	Leaves	Fractionation	Freund's Complete Adjuvant-induced chronic immunological arthritis
Callicarpa macrophylla Vahl,	Verbenaceae	Flower	ethanolic extract	protein denaturation model; Membrane stabilization model
Cardiospermum halicacabum Linn,	Sapindaceae	leaves	ethanolic extract	CFA-induced arthritis
Citrullus colocynthis	Cucurbitaceae	Colocynth root	ethanol extract	osteoarthritis in chondrocyte cells
Commiphora myrrha Nees	Burseraceae	Guggulu	extract	osteoarthritis (OA) models
Cordia dichotoma	Boraginaceae	fruits	gum	carrageenan-induced rat paw edema model
Coriandrum sativum	Apiaceae	Seeds	hydroalcoholic extract	formaldehyde and Complete Freund's adjuvant (CFA) induced arthritis
Euphorbia tirucalli	Euphorbiaceae	fruits	triterpenoid fraction	collagen induced arthritis model
Ficus benghallensis	Moraceae	Roots	ethanol and aqueous extract	Freund's adjuvant induced arthritis
Heliotropium indicum	Boraginaceae	Aerial parts	aqueous extracts	Clinical trails
Jatropha curcas	Euphorbiaceae	leaves	ethanolic extract	CFA-induced arthritis
Juglans regia	Juglandaceae	Aerial parts	ethanolic extract	xylene induced ear edema

Continued on next page

Table 1 continued

Plant name	Family	Part used	Extract/active principle	Scientific model
Justicia gendarussa	Acanthaceae	Aerial parts	alcoholic extract	collagen-induced arthritic rat models
Kaempferia galangal	Zingiberaceae	Aerial parts	alcoholic extract	carrageenan-induced rat paw edema
Lantana camara	Verbenaceae	leaves	hydroalcoholic extract	turpentine induced arthritis
Lawsonia inermis	Lythraceae	leaves	hydroalcoholic extract	formaldehyde induced arthritis model
Myxopyrum serratum	Oleaceae	leaves	ethanolic extract	protein Denaturation Method
Naravelia zeylanica	Ranunculaceae	leaves	hydroalcoholic extract	carrageenan induced and Freund's adjuvant induced arthritis
Oroxylum indicum	Bignoniaceae	Root bark	ethyl acetate extract	Hot plate method.
Pandanus odoratisimus	Pandanaceae	Oil from plant	Methanolic extract	formalin-induced chronic paw edema
Piper nigrum	Piperaceae	Fruits	Oil	carrageenan-induced acute paw
Pongamia pinnata	Fabaceae	Seeds	ethanolic extract	protein denaturation model; Membrane stabilization model
Premna corymbosa	Verbenaceae	Leaves	ethanolic extract	Complete Freund's Adjuvant
Rubia cordifolia	Rubiaceae	Stems and roots	Ethanolic extract	Bovine type II Collagen
Sida cardifolia	Malvaceae	Aerial parts	Ethanolic extract	carrageenan-induced acute paw
Stereospermum colais	Bignoniaceae	Stems	Pet. Ether	protein denaturation method
Trachyspermum ammi	Apiaceae	Seeds	Ethanolic extract	protein denaturation method
Vitis vinifera	Vitaceae	Seeds	ethanolic extract	protein denaturation method

tion and disability to some extent (Firestein and McInnes, 2017).

Out of all the types of arthritis, Rheumatoid arthritis is most significant and devastating to the human body. It is an autoimmune disorder that affects almost 2-4% of the population of the world. Rheumatoid arthritis usually occurs when the immune system works against one's own body and attacks it. This attack takes place near the joints and other mobile areas due to the presence of cartilage and certain enzymes. This occurs due to the malfunctioning of the immune system where the reason for this is still not known. The symptomatic onset starts over a long period of time when the joints and cartilages are more affected (Kobelt, 2009).

Rheumatoid arthritis generally affects the joints like wrists, elbows, knees and ankles. Even though the reason for causing RA is unknown, the contributing factors for the development of the RA are of various types. The reasons being given most priority are the genetic history of the disease in family. This factor contributes for about 25% of the total RA cases. Usually women are more affected by RA than men due to the prevalence of hormonal changes. Age is also an important factor that contributes for the development of RA. People of 40-60 yrs of age commonly develop RA although they can develop the disease at any age. Though the disease affects the people at prime age, geriatrics are affected by symptoms more adversely than others. Mobility issues and other pain related issues make the disease much worse in old age people (Saag et al., 2008). RA is neither an infectious nor a contagious disease. Few life style related habits also contribute to RA like smoking and sedentary life style and stress.

Treatment of RA

The general treatment approach for rheumatoid arthritis is to prevent further damage of joints and lower the inflammation and pain. Symptomatic treatment is also the base for RA treatment in many patients. Pain is the most important symptom that is aimed to control at the basic level. With the invention of Anti-rheumatic disease modifying drugs (DMARD's), the medication profiles of the treatment of RA has drastically changed. In symptomatic treatment there are two kinds of drugs.

NSAIDs-these are Non Steroidal anti-inflammatory drugs that are used to treat inflammation and relieve pain that is caused due to arthritis. These medicines cause only symptomatic relief from the arthritic pain but do not prevent the progressive damage caused due to the disease. The NSAID drug suppresses the pain but do not cure RA. Scientific literature also

supports the disadvantage of these drugs in treating the disease as such (Deighton et al., 2009).

The other class of drugs is the corticosteroid class. These are hormonal similar and steroid in nature. They are similar to those hormones produced in the adrenal glands and the most important use of those drugs being the anti-inflammatory activity that is similar to cortisol drug. These drugs control inflammation and are slow acting. It may take a longer duration of treatment than expected to treat arthritis. But the use of steroids should be limited to shorter periods to avoid side effects.

Herbs used to treat RA

Considering these side effects and limited use of the synthetic drugs, a deep focus has been put into herbal drugs as useful remedies to treat RA successfully. So there has been a growing trend towards development of polyherbal formulation employing potent herbs to treat the disease. Scientific investigations had been carried out to prove the potency of the herbs to treat RA in various animal and invitro models. The below is the list of herbs that had been proven to possess anti-rheumatic property and the valid scientific results had been published in research papers (Chandrasekar and Chandrasekar, 2017; Kadhim et al., 2016) (Table 1).

Polyherbal formulations

The herbal drugs were found to be potent and safe in treating RA effectively. There was a rising concern on the usage of herbs as whole. So the polyherbal formulations had been prepared and standardized by various companies and officially marketed as the RA drugs. These formulations were branded across in the medical market in the form of various formulations. These formulations utilize the ancient knowledge of ayurveda and other systems of traditional medicine and incorporate them into the scientific research (Table 2). The polyherbal formulations are prepared using modern techniques and advanced machinery in large scale (Sara and Sailaja, 2019).

DISCUSSION

The only major hurdle for these polyherbal formulations is the drug-drug interactions which is common in herbs especially when the active principle in the herb is potent. The herbal interactions make the situation more badly as the interactions are hard to estimate and analyze. This western concept of combining drugs and treating the disease is remarkable but with limited use when it come to herbs. So the prior study about the herbs and their chemical composition is necessary before incorporating

Table 2: Polyherbal anti-rheumatic formulations

Formulation name	Type of formulation	Ingredients	Manufacturer
Artha cure	Oil	Guggulu; vitex negundo	Be Sure Health Care (P) Ltd
Arthcure	Capsules	Guggulu; vitex negundo	Be Sure Health Care (P) Ltd
Majoon Suranjan	Tablets	Unani formulation	Qarshi herbal products
Ortho Joint Oil	Oil	pinus sylvestris; vitex negundo; celastus paniculatus	SBS Biotech Ltd
Rheuma off Gold	tablets	Guggulu; Ashwagandha, Swarna bhasma	Virgo UAP Pharma (P) Ltd
Rumalaya Forte	Tablet	Boswellia, guggulu	Himalaya Global Holdings Ltd.
Rheumartho Gold	Capsule	Swarna bhasma	Baidyanath
Rumalaya	Liniment	Tinospora cordifolia	Himalaya Global Holdings Ltd.
Sudard	Suspension	Pluchea lanceolata, Paederia foetida, Vitex negundo, Zingiber officinalis, Strychnos nuxvomica	Anglo French Drugs and Industries Ltd
TBL-II	Tablets	Chinese herbs	Zhong-Yue Herbal Pharmaceutical Union Company

or combining them into formulations. There had been investigations in this arena and is continuing to build more documentation to prove the same (Singh *et al.*, 2011). This also gives a hope to the patients and scientists that emerging trends in the formulation development incorporating herbs is best to treat the disease effectively. There had been studies that showed synergy between herbs when used concurrently and this can be used for the fullest advantage for treating the disease successfully. With all this investigations we can also hope that the disease can be treated better while offering a cure and treating the symptoms at the same time (Petchi and Parasuraman, 2015).

CONCLUSIONS

There were numerous plants and medicinal herbs that are used to treat Rheumatoid arthritis. Most of them were investigated to prove the activity too. The herbs had been incorporated into herbal formulations that are used to treat the disease effectively. Many polyherbal formulations had been marketed successfully and were prescribed by the physician. In this view the standardization stands as utmost important parameter for proving the quality of the formulation. Considering the marketed formulations attempts are to be made to determine the quality and effect of the herbal formulations. Investigations are also to be made to determine the interaction between the herbs that are employed in the formulation.

ACKNOWLEDGEMENT

The authors are thankful to the management of Vels Institute of Science, Technology and Advanced Studies (VISTAS), Pallavaram, Chennai-600 117, Tamil Nadu, India for providing research facility.

Conflict of interest

The authors declare that they have no conflict of interest for this study.

Funding support

The authors declare that they have no funding support for this study.

REFERENCES

- Chandrasekar, R., Chandrasekar, S. 2017. Natural herbal treatment for rheumatoid arthritis-a review. *International Journal of Pharmaceutical Sciences and Research*, 8(2):368-384.
- Deighton, C., O'Mahony, R., *et al.* 2009. Management of rheumatoid arthritis: summary of NICE guidance. *BMJ*, 338(mar16 1):b702-b702.
- Firestein, G. S., McInnes, I. B. 2017. Immunopathogenesis of Rheumatoid Arthritis. *Immunity*, 46(2):183-196.
- Kadhim, M. J., Kaizal, A. F., Hameed, I. H. 2016. Medicinal plants used for treatment of rheumatoid arthritis: A review. *International Journal of Pharmaceutical and Clinical Research*, 8(12):1685-1694.

- Kobelt, G. 2009. The social and economic impact of rheumatoid arthritis. *Rheumatoid Arthritis*, pages 83-89.
- Petchi, R. R., Parasuraman, S. 2015. Antiarthritic activity of a polyherbal formulation against Freund's complete adjuvant induced arthritis in Female Wistar rats. *Journal of Basic and Clinical Pharmacy*, 6(3):77-77.
- Saag, K. G., Teng, G. G., et al. 2008. American College of Rheumatology 2008 recommendations for the use of nonbiologic and biologic disease-modifying antirheumatic drugs in rheumatoid arthritis. *Arthritis & Rheumatism*, 59(6):762-784.
- Sara, B. B., Sailaja, A. K. 2019. A Review on Polyherbal Formulations used in the Treatment of Autoimmune Disease like Rheumatoid Arthritis. *Research & Reviews: Journal of Herbal Science*, 8(1):11-16.
- Singh, S., Nair, V., Gupta, Y. K. 2011. Antiarthritic activity of majoon suranjan (a polyherbal Unani formulation) in rat. *The Indian Journal of Medical Research*, 134:384-388.